

# Math assessment- Bench Designing

## My bench

A indoor dinning chair

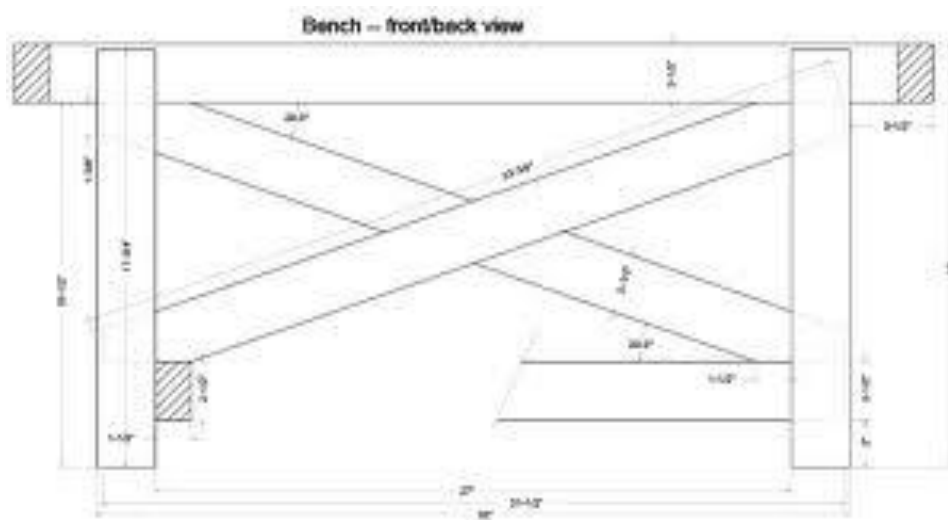


## Introduction:

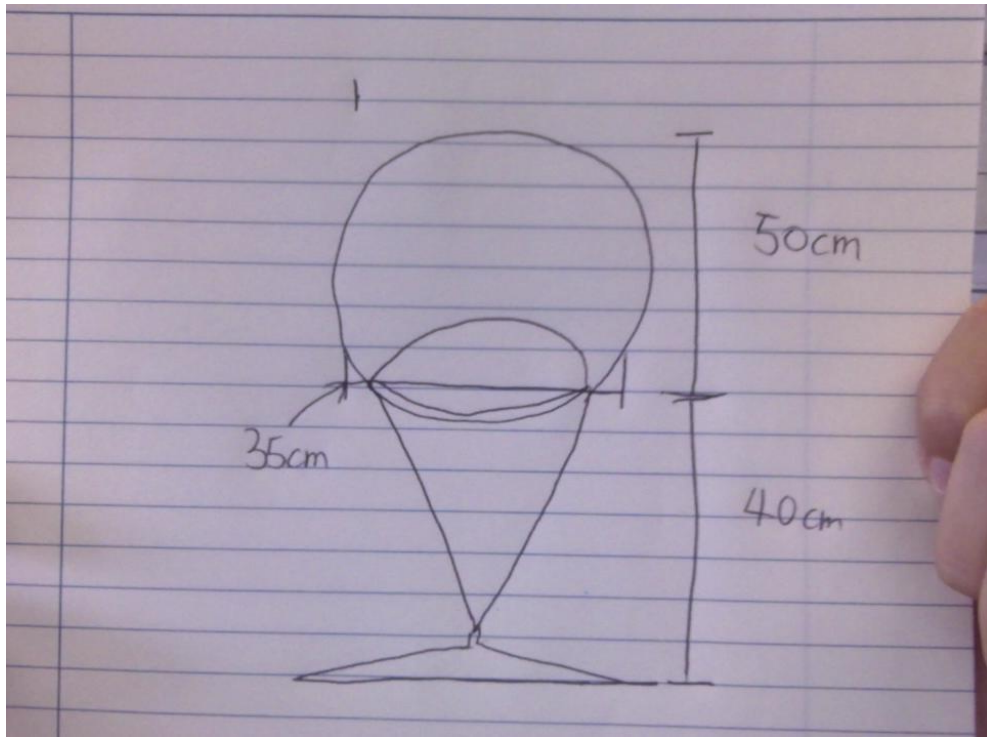
I am creating my bench because I always take a mountain hike up the shek o village. Up the mountain there is a beautiful spot that I love to just sit and to watch the ocean. For this purpose of this, I am creating this chair for myself and other people to enjoy the scenery that I love.

## Initial Bench Research:

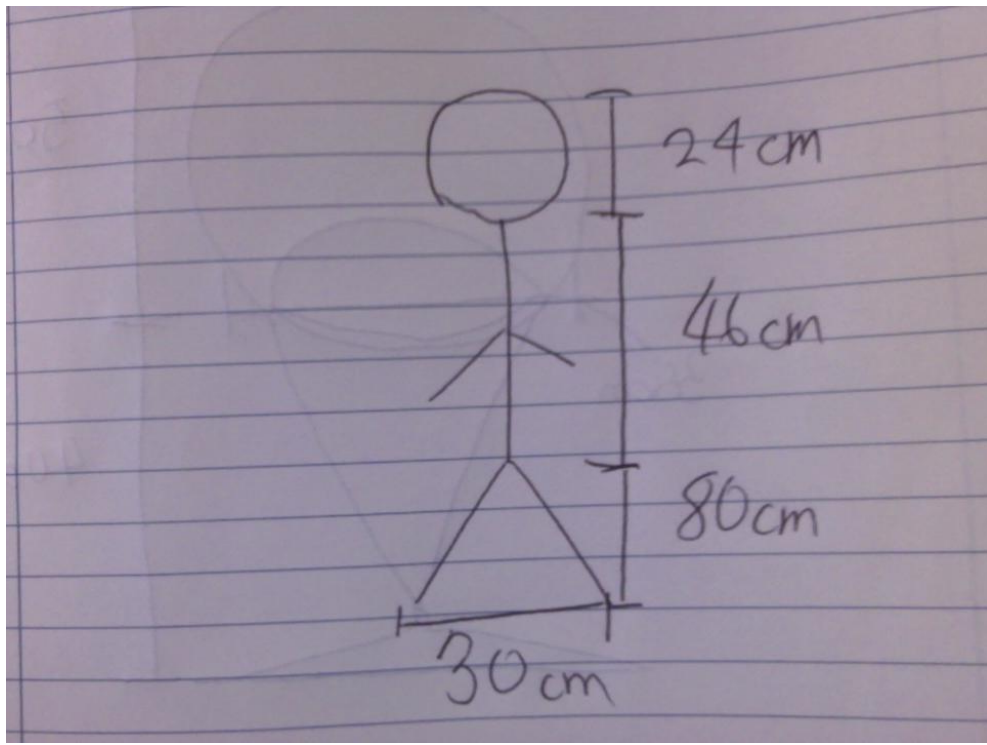
What I need to know for my math bench is how the look of one is. I think the most important thing in a chair is to sit in it for long times. For the purpose of enjoying the view of the shek o mountain. I want to be sitting on the mountain for a long time. To me it is peaceful. Measurements are the seat, the back, the knee to foot measurements. I will go on the street and ask a total of five people for their measurements and do the average formula which will give me my average calculation and apply it to my chair final calculations.



Bench Sketch:



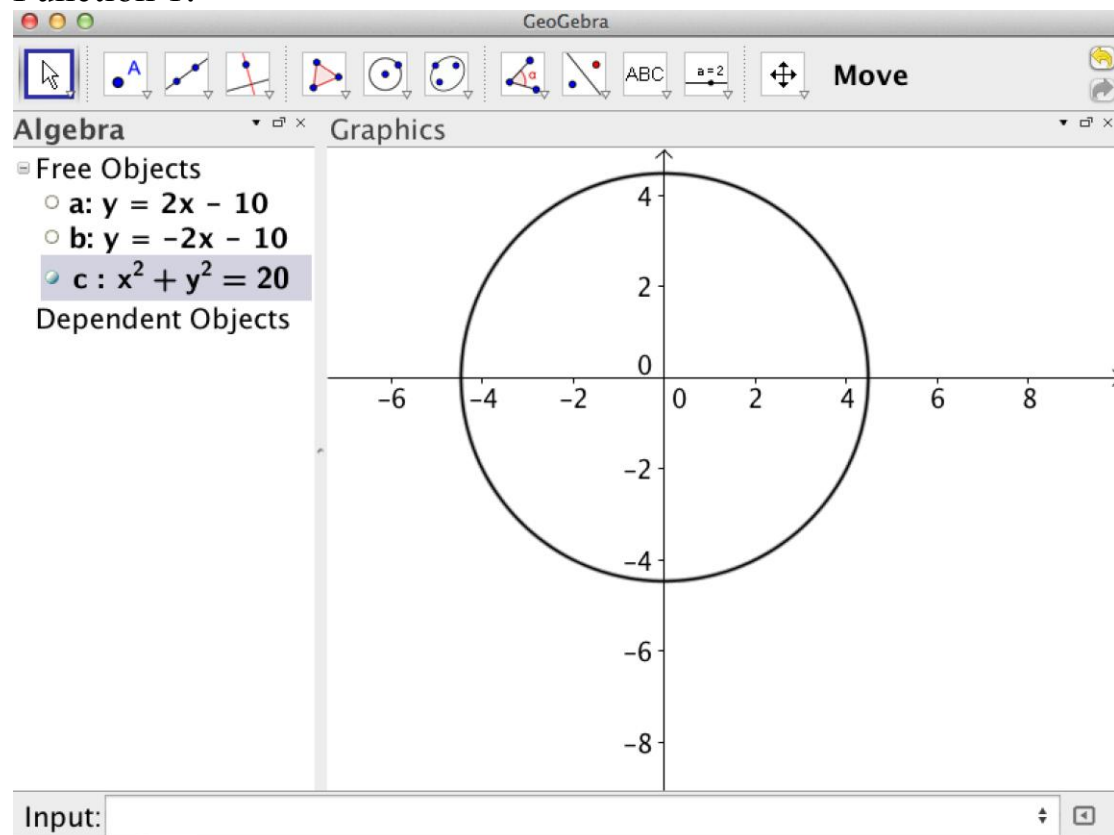
Human Measurements:



### Initial function research:

What I have learned this time was always in front of me. All I did was add negatives to the equation which would change the side of the oval. I will then have found out the top and bottom. Then I thought about the x and y axis then all I did was rearrange the order which would change the sides of the shapes. The last thing I learned this lesson was that the smaller the number, the wider the oval will be.

### Function 1:



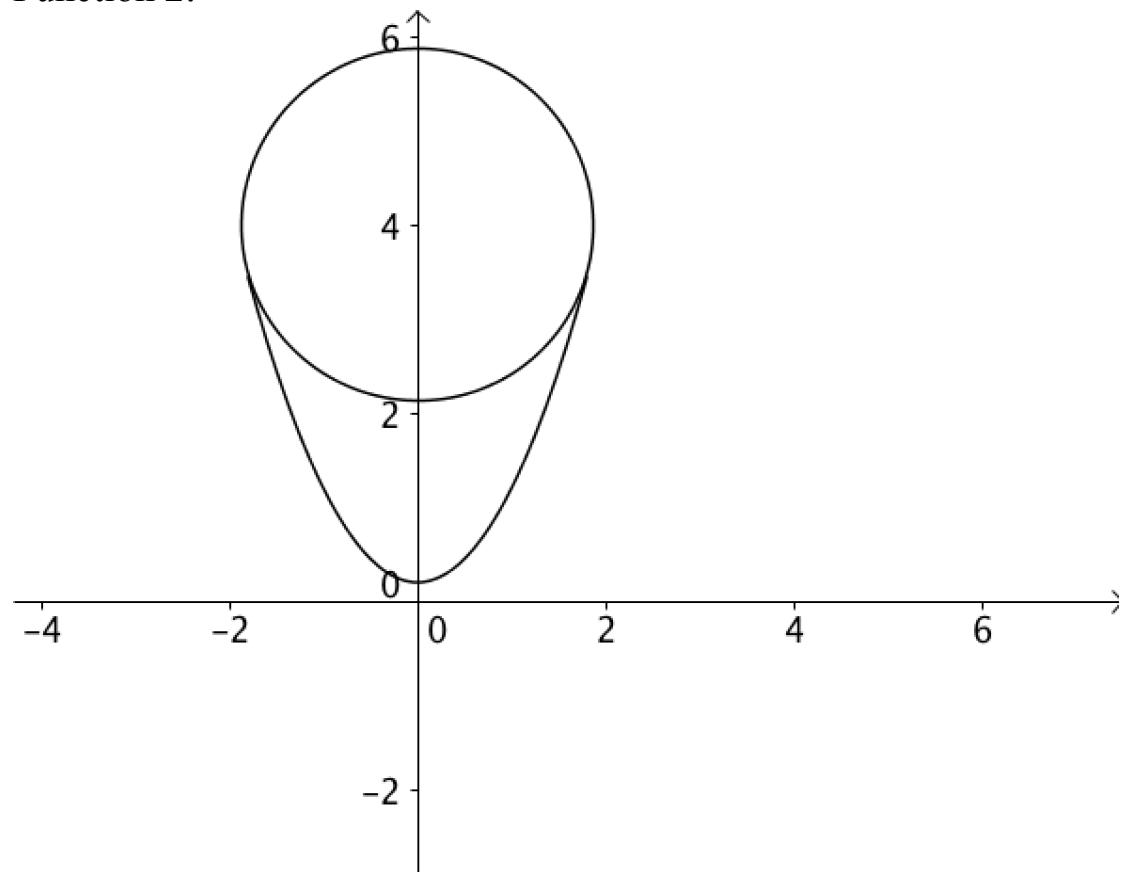
This photo is count in 10cm in 1 meter.

$$x + y = 20$$

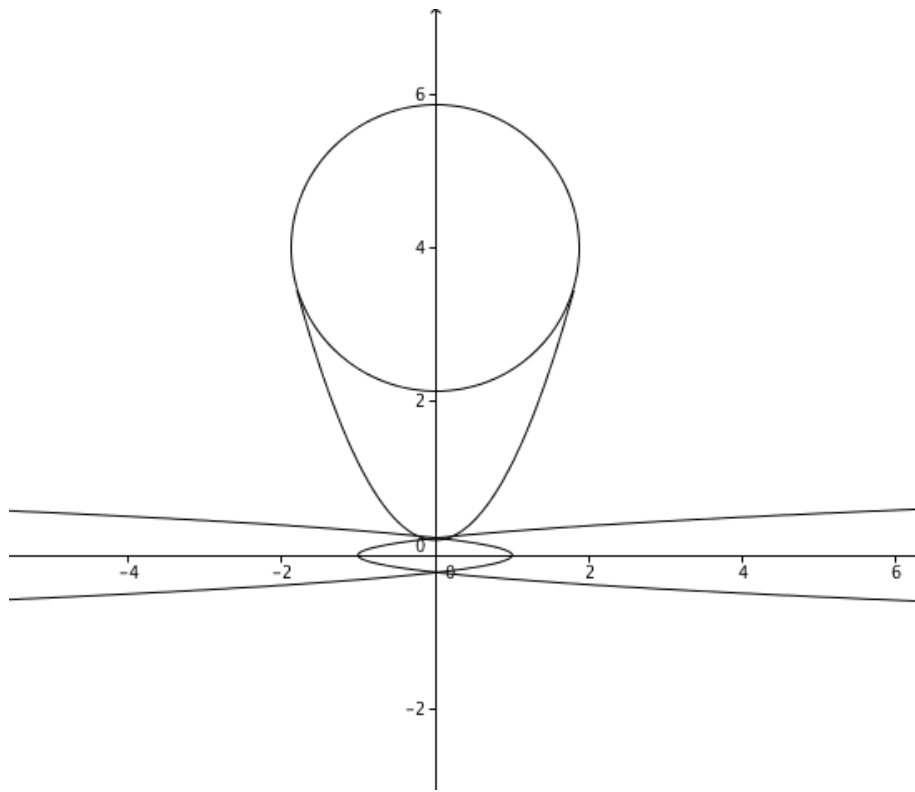
This is my first function, this is my chairs backrest and butt rest.

The equation that I input for the circle  $x^2 + y^2 = 2$ . The total perimeter of the whole area is five adding together gets 20. The square root is to form the curve of the circle and the radius is 2 because the equation (circle) is equal to 2.

Function 2:



$Y = x^2 + 0.2$ . The  $y = x^2$  is the equation to form the curve. Square root is for the curve and  $y = x$  is for the line to form. The 0.2 is to move the curve up vertically.



### Function 3:

The equation of the curve is  $-20y - x = -1$  and  $-20y + x = -1$ . The negative sign makes the 2 curves to be reflected to the other side and formed the base of my chair. I have rotate both curves 90 degree to right and the left. The original curve is  $y=20x$ . Convert the x and y the curve will rotate right 90 degree and add a negative sign in front of x would make it turn to the left. This is also my final copy of my bench assessment. My chair is completely made out here at 10cm to 1 meter in scale.

### Functions:

#### Shift:

The use of this function is to move the vertex left or right. The equation is  $y=x +k$ , the k means how much is the k how much it's the function moving.

#### Reflection:

There are two kind of reflections, one is on the x axis and the other is on the y. how we reflect the function is to change all the number in the blanket to negative.

Rotate:

A rotation can be rotate in the x and y axis.  $x=y^2+k$  is an example.

Rotation is keeping it in the same position but rotating it left or right.

Stretch:

A stretch is to stretch to make the function wider, the number you input need to be smaller then the old one ore else it wouldn't work.

Percentage error:

Back rest	50-40/50x100%	30% off
Height	90-60/90x100%	23.3% off
Seat	35-40/35x100%	-79.2% off
Under seat	40-40/40x100%	No error
Front leg	40-20/40x100%	10% off

### Initial Bench Design:

Bench design table measurements

Position:	Length	Units
Back rest	50	Cm
Height	90	Cm
Seat	35	Cm
Under seat	40	Cm
Front leg	40	Cm

Reflection:

There was many challenges that I enjoyed. I did not expect so much work but we had fun .

Bibliography:

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